

## MISCELLANEOUS.

*Observations on the Spermatophores of the Decapod Crustacea.*

By M. BROCCHI.

IN 1842 M. Milne-Edwards published, in the 'Annales des Sciences Naturelles' (2<sup>e</sup> série, tome xviii. p. 331), a memoir on the singular bodies met with in the Cephalopoda, and noticed by Cuvier under the name of *machines* or *animalcules de Needham*. He demonstrated the true nature of these bodies, showing that they were peculiar receptacles destined to contain the seminal fluid, and he gave them the name of *spermatophores*.

These spermatophores have since been indicated in several Invertebrata. They have been met with, 1st, in insects, M. Lespés having described this mode of fecundation in the cricket; 2nd, in certain worms, such as *Clepsine* and *Nephelis*; and, 3rd, in some of the lower Crustacea, spermatophores having been seen and figured by Jurine and Müller in *Cyclops Castor* (*Diaptomus Castor*). However, the true nature of these bodies was only determined by M. von Siebold. Similar receptacles have been observed in others of the lower Crustacea; but, as far as I know, they have never been indicated among the Decapods.

Now, in investigating the anatomy of some *Macrura*, I have found very distinct tubes in the interior of the penis of the males. The existence of these seemed to be in relation with the state of functional activity of the male genital organs, and to coincide solely with the period of fecundation.

I now believe that I am justified in regarding these tubes as true spermatophores. In fact, in dissecting some male lobsters, I have lately found, in the interior of the penis in these animals, a perfectly distinct tube capable of isolation from the walls of the organ. This tube was situated in the subterminal part of the penis and was of a yellowish-white colour. On placing it under the microscope I distinguished in it clearly a structureless envelope and contents formed by spermatie corpuscles. The latter were very distinct, perfectly recognizable, and in all respects conformable to the figures given by M. Kölliker. Here, therefore, we have in a Decapod a tube containing spermatie corpuscles—that is to say, a true spermatophore.

In his 'Leçons sur l'Anatomie et la Physiologie comparée,' M. Milne-Edwards noticed the existence of a rolled-up tube in the penis of the spiny lobster (*Palinurus*). "In the spiny lobster," he says (tome ix. p. 255), "the subterminal portion of the ejaculatory canal is much dilated, and contains in its interior a tube very much twisted upon itself." Nevertheless the learned Professor does not pronounce an opinion as to the nature of this tube. I may add that M. Alphonse Milne-Edwards was unable to detect the presence of spermatie corpuscles in it. It seems to me that this tube is very probably of the same nature as that observed in the lobster. I must remark also that M. Milne-Edwards had, as it were, foreseen the existence of spermatophores in the higher Crustacea. Thus, in the work which I have already quoted (tome ix. p. 258), he says:—"While investigating the Crustacea of the coast of Brittany in 1827, I found a

female *Cancer pagurus* which had copulated a little while before, and bore, buried in each of its copulatory pouches, a white, cylindrical, soft body, which appeared to me to be the terminal portion of the membranous penis of the male separated from the rest of the sexual organs of the latter. I regret that I have not had the opportunity of repeating this observation, *since my attention has been directed to the spermatophores*; for it is possible that the sort of stopper in question left in the vulva may have been a body of that nature rather than a fragment of a penis."

In dissecting a female *Maia squinado*, I found in its copulatory pouches bodies analogous to those indicated by M. Milne-Edwards. The histological examination of these bodies proved that they could not be regarded as fragments of a penis. In fact they showed no trace of organized tissues. It is therefore possible that they must be regarded as remains of the spermatophores of the male. However, as I have not hitherto had the opportunity of observing spermatophores in the Brachyurous Crustacea, I shall not venture to speak decidedly upon this point.—*Comptes Rendus*, March 23, 1874, p. 855.

*On the Felis euptilura from Shanghai, in the British Museum.*

By Dr. J. E. GRAY, F.R.S. &c.

The British Museum has received from Mr. Webb, through John Russell Reeves, Esq., a wild cat from Shanghai. It has the colour and much of the spotting of the *Felis rubiginosa* from Western India; but it is quite different from that long-headed, long-tailed cat in being a short-headed, short-tailed animal, and in the short skull having the incomplete orbits of the true cats, instead of being long and with the complete orbits of *Viverriceps rubiginosa*.

This cat has all the characters of the smaller spotted Asiatic cats with short spotted tails, on which I published a paper in the 'Annals' for January 1874 (xiii. p. 55).

I am inclined to regard it as a perfect specimen of the *Felis euptilura*, described by Mr. Elliot and figured by Mr. Wolf, P. Z. S. 1871, p. 761, t. lxxvi., from a very bad skin, now in the British Museum, supposed to have come from Siberia.

The possession of a perfect skin and skull of this confirms it as a distinct species. The specimen in the Museum chiefly differs from Mr. Wolf's figure in the streaks on the crown and nape not being quite so wide, and in the tail being rather longer and more cylindrical, which is easily explained when we consider the very bad state in which the skin figured by Mr. Wolf was.

The skull has very large, prominent, swollen, compressed bullæ to the ears, and a large deep subcircular cavity at the inner side of the hinder part of the flesh-tooth and the small tubercular grinder.

*On the Amount of Pressure in the Sap of Plants.*

By Prof. W. S. CLARKE, of Amherst.

It only remains to state in a few words the results obtained by the application of mercurial gauges to the sugar-maple, the black birch, and the grape-vine. Observations were made on one or more